

# The Environmental Management Program

Since being authorized under the Water Resources Development Act of 1986, the Environmental Management Program has completed more than 48 projects which have restored more than 80,000 acres of backwater habitat.



Graphic created by Angie Freyermuth of the U.S. Army Corps of Engineers, Rock Island District

The EMP is a federal-state partnership designed to restore, protect, and monitor the natural resources of the Upper Mississippi River System. For more than 20 years the program has made a positive effort toward understanding and restoring large rivers. The EMP also provides decision makers with information about the river system through monitoring the river's health and researching the river's ecology.

The EMP involves two elements: Long Term Resource Monitoring and Habitat Rehabilitation and Enhancement Projects.

The Long Term Resource Monitoring portion of the EMP is lead by the U.S. Geological Survey and has provided decision makers with information about the river system by monitoring the river's health and researching the river's ecology. It is the first comprehensive large river system natural resource monitoring network in the world.

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Research studies focus on answering specific questions about the Upper Mississippi River System and its ecology, including habitat requirements of important species such as paddlefish and sturgeon. Monitoring information also helps resource managers address a wide range of river issues.

Because of the EMP, there is now a wealth of data, including aerial photographs, maps, scientific reports, and water depths available. This information helps river managers make important decisions about where and how to distribute resources.

The second component of the program is the creation of the Habitat Rehabilitation and Enhancement Projects. These are designed to benefit fish, waterfowl, and other wildlife by restoring lost habitat or protecting existing habitat. Habitat Rehabilitation and Enhancement Projects have provided the foundation for large river habitat restoration efforts on the Upper Mississippi River System.

*The invasive Asian carp were first detected by monitoring the fish community through the Environmental Management Program.*  
Photo courtesy of the U.S. Fish and Wildlife Service





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*This 600-acre land and water project provides a 10,200-foot-long rock dike around the head of the island, which deflects sediment from the aquatic and wetlands complex behind it. This area is an important spawning, rearing, and wintering habitat for fish.*

Prior to this program, there was not a coordinated or systemic approach to the planning and implementation of habitat restoration efforts on this river, or any other large river system in the world.

Under the leadership of the Corps, the projects are planned and designed by teams of individuals from the U.S. Fish and Wildlife Service, the Corps, and the natural resource or conservation agencies from Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Private citizens and organizations also play an important role in this planning process.

Partnership is the key to seeing these projects come to successful conclusion. By working together, all agencies share some responsibility for making sure the river is in a healthy, productive condition. The Corps brings engineering, design, and program management leadership to the program. The USFWS, as well as the state agencies, bring biological expertise. The program has succeeded in combining what the biologists would like to see with what the engineers can design. That's where the expertise of the Corps, in terms of program management, really becomes important, because program managers provide oversight that coordinates activities between the engineers and the biologists.



**Photo courtesy of Jeff Janvrin from the Wisconsin Department of Natural Resources**

*Mud Lake in Dubuque, Iowa, is a 500-acre backwater complex consisting of two miles of island, a berm to reduce sediment, and a small channel. This is one of the largest mechanically-created islands on the Mississippi River. In 2006, tundra swans were seen in this area for the first time in years.*

Completed projects are monitored to measure their performance and to improve future project designs. Many new techniques for restoring large rivers have been developed through the EMP.

Projects use a variety of tools to restore or protect fish and wildlife habitat, including island building, backwater dredging, shoreline improvements, structures to regulate water flow, and water level management.

An example of backwater river improvements can be found in the Upper Mississippi River National Wildlife and Fish Refuge's Island 42 project near Weaver, Minnesota. This project involved installing two huge gated culverts and creating a channel hundreds of feet long to provide dissolved oxygen in the backwater. Seven acres were also dredged to create deeper wintertime fish habitat. This was the first EMP habitat project completed. Since its completion, native grasses planted along the channel have expanded the area's plant life for the benefit of a wide variety of wildlife. The project has also reestablished an historic wintertime fishery.



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**Photographer Unknown**  
*Swan Lake is at the Two Rivers National Wildlife Refuge, near the confluence of the Illinois and Mississippi Rivers. It contains 3,000 acres and is the largest backwater lake on the lower Illinois River, providing some of the most important wetland habitat in the region for migratory birds and big river fish.*



Fish and wildlife response to these projects has been excellent. Sampling at several project areas has shown the number of adult bluegill and other fish species has increased one hundred fold. The use by waterfowl and other bird species has also greatly increased in the project areas.



The project includes creating islands and dredging to increase water depths. This resulted in an immediate increase in aquatic plants for fish and wildlife. Only a few years after completion, the project is one of the best bass, bluegill, and perch fisheries in the area, attracting anglers from hundreds of miles away.

The EMP has already been recognized for its award winning qualities:

- The LTRMP component was recognized for 20 years of regional partnering by the U.S. Department of the Interior with its Cooperative Conservation Award;
- The Dan Renfro Partnering Award was given to J.F. Brennan Company for their efforts in working on the public/private partnership to build Mud Lake;
- The District Regional Planning and Management Team was recognized by the Mississippi Valley Division in 2005 for its efforts;
- The St. Paul District received the Seven Wonders of Engineers Award; and,
- The Swan Lake Habitat Restoration and Enhancement Project won the Honor Award for the 2004 USACE, Chief of Engineers Design and Environmental Award Program.